Dual Rail 8-Port & 16-Port LCD KVM Switch

RM-KB-LCD17x8KVM
RM-KB-LCD17x16KVM

User Manual

Middle Atlantic Products

FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

This product is RoHS compliant.

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

The RM-KB-LCD17x8/16KVM package consists of:

- 1 RM-KB-LCD17x8/16KVM Switch
- 1 Easy Installation Rack Mount Kit (includes four bracket screws)
- 8 Rack Mount Screws with Washers
- 4 10 feet (3 meters) Hybrid KVM Cable (for RM-KB-LCD17x8KVM)
- 8 10 feet (3 meters) Hybrid KVM Cable (for RM-KB-LCD17x16KVM)
- 1 Five in One USB/PS2 Console Cable
- 1 Firmware Upgrade Cable
- 1 Power Cord
- 1 Grounding Wire
- 1 User Manual (Soft copy in CD)*
- 1 Quick Start Guide

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

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* Features may have been added to the RM-KB-LCD17x8/16KVM since this manual was released. Please visit our website at *www.middleatlantic.com* to download the most up-to-date version of the manual.

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1. Introduction

2. Hardware Setup

3. Basic Operation

4. On Screen Display (OSD) Operation

5. Keyboard Port Operation

6. The Firmware Upgrade Utility

Appendix

About this Manual

This user manual is provided to help you get the most from your RM-KB-LCD17x8/16KVM system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Chapter 1, Introduction, introduces you to the RM-KB-LCD17x8/16KVM system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes how to set up your installation.

Chapter 3, Basic Operation, explains the fundamental concepts involved in operating the RM-KB-LCD17x8/16KVM.

Chapter 4, On Screen Display (OSD) Operation, provides a complete description of the RM-KB-LCD17x8/16KVM's on-screen display (OSD), and how to work with it.

Chapter 5, Keyboard Port Operation, details all of the concepts and procedures involved in the hotkey operation of your RM-KB-LCD17x8/16KVM installation.

Chapter 6, The Firmware Upgrade Utility, explains how to use this utility to upgrade the RM-KB-LCD17x8/16KVM's firmware with the latest available versions.

An Appendix, provides specifications and other technical information regarding the RM-KB-LCD17x8/16KVM.

Conventions

This manual uses the following conventions:

Monospaced	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

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Chapter 1
Introduction

Overview

The RM-KB-LCD17x8/16KVM switch is an integrated LCD console and keyboard, video, and mouse (KVM) switch that offers secure access to 8 or 16 attached computers and mounts in only 1U of rack space. It features an independently retractable 17" LCD monitor and keyboard with built-in touchpad. To maximize space in your data center, the keyboard/touchpad module hides away when not in use, while the thin profile LCD monitor rotates back – flush against the rack – allowing convenient monitoring of computer activity.

An extra console port is provided on the rear panel to manage the LCD KVM switch from an external console (monitor, keyboard, and mouse) up to 20 meters away. For added convenience it also supports an external USB mouse.

The RM-KB-LCD17x8/16KVM supports both PS/2 and USB keyboards and mice for the connected computers, and supports USB peripheral devices to be used with the attached computers. A single RM-KB-LCD17x8/16KVM can control up to 8 or 16 computers.

Your RM-KB-LCD17x8/16KVM investment is protected by an included firmware upgrade utility. You can stay current with the latest functionality improvements by downloading firmware update files from our website as they become available, and using the utility to quickly and conveniently perform the upgrade.

Setup is fast and easy: plugging cables into their appropriate ports is all that is entailed. Because the RM-KB-LCD17x8/16KVM intercepts keyboard input directly, there is no software to configure, no need to get involved in complex installation routines, nor any need to be concerned with incompatibility problems.

Access to any computer connected to the installation is easily accomplished either by entering hotkey combinations from the keyboard, or by means of a powerful, mouse driven, OSD (on-screen display) menu system. A convenient *Auto Scan* feature also permits automatic scanning and monitoring of the activities of all computers running on the installation one by one.

There is no better way to save time and money than with a RM-KB-LCD17x8/16KVM installation. By using the RM-KB-LCD17x8/16KVM with its sliding LCD console to manage your installation, you eliminate the expense of having to purchase a separate keyboard, monitor, and mouse for each computer; save all the space those extra components would take up; save the space that a keyboard, monitor, and mouse would take with a standard KVM switch; save on energy costs; and eliminate the inconvenience and wasted effort involved in constantly moving from one computer to another.

Features

- Integrated KVM console with a 17" LCD monitor in a dual rail housing
- Dual rail design allows LCD monitor and keyboard/touchpad to operate independently
- Easy Installation Rack Mount Kit (for one-person installation)
- Space saving technology – up to two consoles (one bus) control up to 8 or 16 computers
- Dual Interface – supports computers with PS/2 or USB keyboards and mice
- USB port allows each computer to access USB peripherals[1]
- Multiplatform support – Windows 2000/XP/Vista, Linux, Mac, and Sun
- Supports multimedia USB keyboards for PC, Mac and Sun
- Auto PS/2 and USB interface detection
- Keyboard and mouse emulation (PS/2 and USB) for smooth switching and simultaneous booting of multiple computers even when the console focus is elsewhere
- Superior video quality – supports resolutions up to 1280 x 1024 @ 75 Hz
- No software required – convenient computer selection via mouse-driven, intuitive OSD (on-screen display) menus and hotkeys
- Two level password security – authorized users view and control computers
- Supports one administrator and four user accounts with separate profiles
- Auto Scan mode enables continuous monitoring of user-selected computers
- Broadcast support – commands from the keyboard can be broadcast to all available computers on the installation
- Hot pluggable – add or remove computers without having to power down the switch
- Beeper on/off via hotkey and OSD
- Extra console port – manage computers from an external console (monitor, USB or PS/2 keyboard and mouse)
- Supports external USB mouse
- Dedicated *Hotkey* mode and *OSD Invocation Keys* reduce the number of keystrokes and provide quick access to these functions

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1. The USB peripheral function only works with USB cable set connections. It will not work with PS/2 cable set connections.

- Locking mechanism to securely lock the keyboard drawer in the open position

- Security – Administrator/User password authorization for enhanced security protection; Administrator access rights synchronized between master and slave stations

- OSD screen automatically adjusts to resolution changes

- Two types of logout: manual and timed

- Sliding housing is slightly less than 1U with top and bottom clearance for smooth operation in 1U of rack space

- DDC emulation – video settings of each computer are automatically adjusted for optimal output to the monitor

- Standard 105-key keyboard

- Keyboard status restored when switching computers

Requirements

External Console

The following hardware components are required for the external console:

◆ A VGA, SVGA, or multisync monitor capable of displaying the highest resolution provided by any computer in the installation.

◆ A USB or PS/2 keyboard and mouse

Computers

The following equipment must be installed on each computer:

◆ A VGA, SVGA, or multisync video graphics card with an HDB-15 port.

> **Note:** The integrated LCD monitor's maximum resolution is 1280 x 1024 @ 75 Hz. Make sure that none of the computer resolution settings exceed the LCD monitor's maximum resolution.

◆ PS/2 mouse and keyboard ports (6-pin Mini-DIN), or at least one USB port.

Cables

Substandard cables may damage the connected devices or degrade overall performance. For optimum signal integrity and to simplify the layout, we strongly recommend that you use the high quality Hybrid Cable sets as provided in the package.

> **Note:** You can also purchase an additional 4-pack of Hybrid cables on our website (www.middleatlantic.com). Part no.: PS2/USB-4C

<u>Operating Systems</u>

Supported operating systems are shown in the table, below:

OS		Version
Windows		2000 and higher
Linux	RedHat	7.1 and higher
	SuSE	9.0 and higher
	Mandriva (Mandrake)	9.0 and higher
UNIX	AIX	4.3 and higher
	FreeBSD	4.2 and higher
	Sun	Solaris 8 and higher
Novell	Netware	5.0 and higher
Mac		OS 9 and higher
DOS		6.22

Components

Front View

No.	Component	Description
1	Handle	Pull to slide the KVM module out; push to slide the module in (see item 2 in this table).
2	LCD Display	After sliding the KVM module out, flip up the cover to access the LCD monitor.
3	LCD Controls	The LCD On/Off switch is located here, as well as buttons to control the position and picture settings of the LCD display. See page 28 for details.
4	Port LEDs	An **ON LINE** LED lights to indicate that the computer attached to its corresponding port is up and running.
5	Keyboard	Standard 105-key keyboard
6	Touchpad	Standard mouse touchpad
7	Port Switches	Press the **UP** or **DOWN** buttons for the Port ID to bring the KVM focus to the computer attached to the corresponding port. See *Manual Port Switching*, page 31.
8	External Mouse Port	A USB mouse port is provided for users who prefer to use an external mouse.
9	Power LED	Lights to indicate that the unit is receiving power.
10	Rack Mounting Brackets	The rack mount brackets located at each corner of the unit secure the chassis to a system rack.
11	Lock LEDs	Num Lock, Caps Lock, Scroll Lock LEDs are located here.
12	Reset Switch	Located to the right of the Lock LEDs. Press this recessed switch in with a small object to perform a system reset.
13	USB Port	The USB port is available to connect a USB 1.1 peripheral device (flash drive, CD-ROM drive, etc.) to the switch.
14	Firmware Upgrade Section	◆ **Firmware Upgrade Port:** The Firmware Upgrade Cable that transfers the firmware upgrade data from the administrator's computer to the RM-KB-LCD17x8/16KVM plugs into this RJ-11 connector. ◆ **Firmware Upgrade Switch:** During normal operation this switch should be in the NORMAL position. (See *The Firmware Upgrade Utility*, page 55 for firmware upgrading details.)

Rear View

No.	Component	Description
1	Power Socket	This is a standard 3-prong AC power socket. The power cord from an AC source plugs in here.
2	Power Switch	This standard rocker switch powers the unit on and off.
3	Grounding Terminal	The grounding wire used to ground the switch attaches here.
4	External Console Port	For flexibility and convenience, the RM-KB-LCD17x8/16KVM supports an independent, external, KVM console. The external console keyboard, monitor, and mouse cables plug in here.
5	KVM Port Section	The cables that link to the computers plug in here. **Note:** The shape of these SPHD connectors has been specifically modified so that only KVM cables designed to work with this switch can plug in (see the *Cables* section on page 5, for details). Do **NOT** attempt to use ordinary 15 pin VGA connector cables to link these ports to the computers.

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Chapter 2
Hardware Setup

Overview

For convenience and flexibility that allows mixing PS/2 and USB interfaces, the RM-KB-LCD17x8/16KVM design utilizes custom KVM cables that serve as intermediaries between the KVM switch and the connected computers.

A separate custom KVM cable is required for each computer connection. Consult your dealer to find out which custom KVM cables best fit your needs.

Before you Begin

1. Important safety information regarding the placement of this device is provided on page 61. Please review it before proceeding.

2. Make sure that power to all the devices you will be connecting up has been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

3. Packing material has been inserted to protect the RM-KB-LCD17x8/16KVM during shipping. Slide the LCD module out (see *Opening the Console*, page 15), until the packing material is visible. Remove the packing material before installing the unit, as shown in the diagram below.
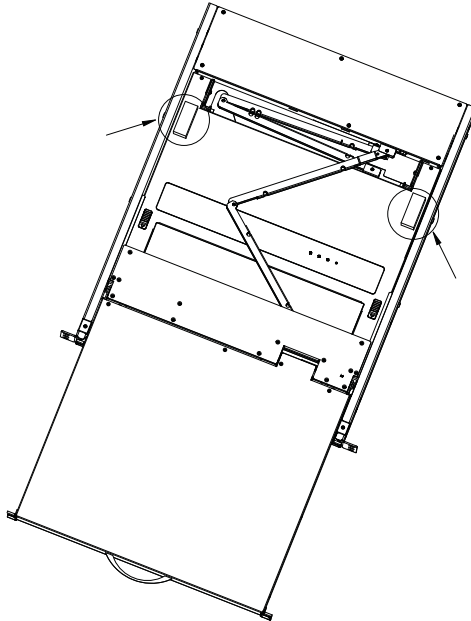
Note: Allow at least 2 inches (5.1 cm) on each side for proper ventilation, and at least 5 inches (12.7 cm) at the back for the power cord and cable clearance.

Rack Mounting

To rack mount the RM-KB-LCD17x8/16KVM, do the following:

1. Attach the left and right mounting rails to the inside of the rack with the rack mount screws provided. The flange that supports the switch will be to the inside.
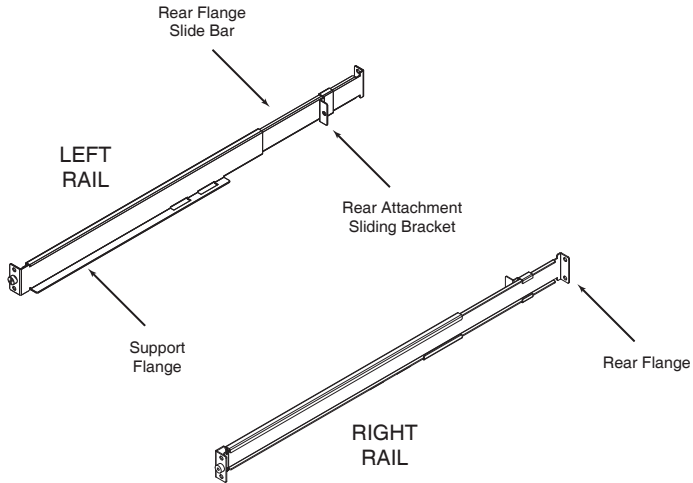
a) Screw the front flanges to the rack first.

b) Slide the bars with the rear flanges toward the rack until the flanges make contact with the rack, then screw the rear flanges to the rack.

HP 10-32 thread, ¾ inch
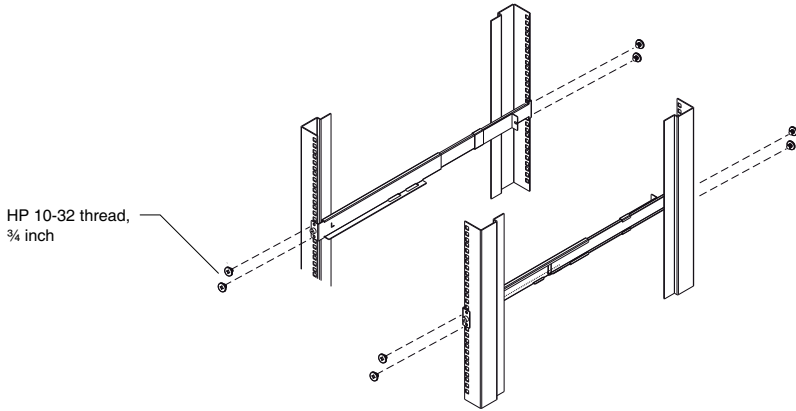
2. Slide the switch onto the support flanges. Use the bracket screws supplied with this package to loosely attach the front of the switch to the front of the rack (only tighten the screws part way).

Phillips I head M4L6
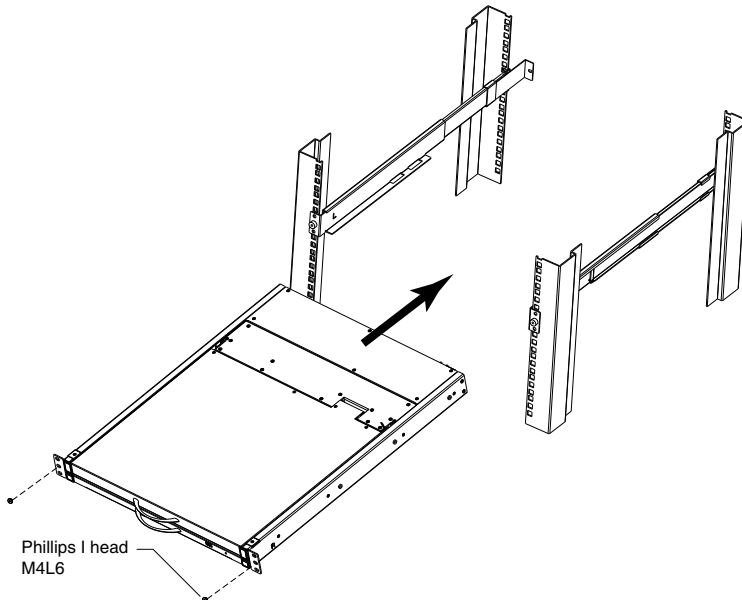
3. Slide the rear attachment sliding brackets along the slide bars until they contact the rear of the switch, then use the bracket screws supplied with this package to attach the bars to the rear of the switch (tighten the screws all the way).

Phillips I head
M4L6
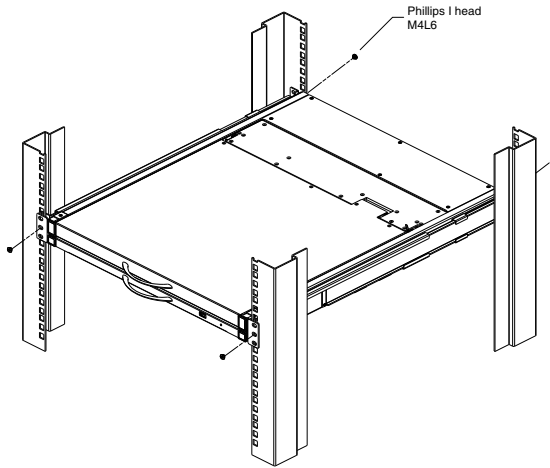
4. Slide the switch open and closed a couple of times to be sure that it is properly aligned and operating smoothly. (See p. 21 for opening and closing procedures.)

5. After determining that the switch is properly lined up and operating correctly, finish up by fully tightening down the partially tightened front attached bracket screws inserted in step 2.

Grounding

To prevent damage to your installation it is important that all devices are properly grounded.

Use a grounding wire to ground the RM-KB-LCD17x8/16KVM by connecting one end of the wire to the grounding terminal, and the other end of the wire to a suitable grounded object.
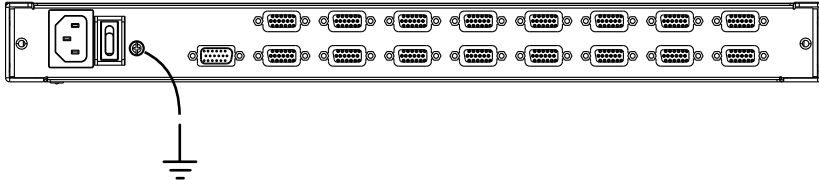
Single Level Installation

To set up a single level installation, refer to the installation instructions and diagrams on the following pages (the numbers in the diagrams correspond to the numbers of the installation steps).

1. Ground the unit.

2. If you choose to connect an external console to the RM-KB-LCD17x8/16KVM, use the console cable provided to plug a keyboard, monitor, and mouse into the *Console Port*. See *Cabling Diagrams*, page 19.

   Note: 1. Using an external console is optional.

   2. The maximum distance between the switch and the external monitor is 65.62 feet. (20 m).

3. For each of the computers you are installing, use a KVM cable set (as described in the *Cables* section on page 5), to connect any available KVM port to the computer's keyboard, video and mouse ports. See *KVM Cable Installation Diagrams*, page 19.

   Note: The maximum distance between the switch and a computer is 10 m.

4. Plug the power cord into the AC power socket of the RM-KB-LCD17x8/16KVM and the other end into a AC power source.

5. Power on the RM-KB-LCD17x8/16KVM (see *Powering Off and Restarting*, page 27 for details). After the RM-KB-LCD17x8/16KVM is powered on, power on the computers.

Installation Diagram
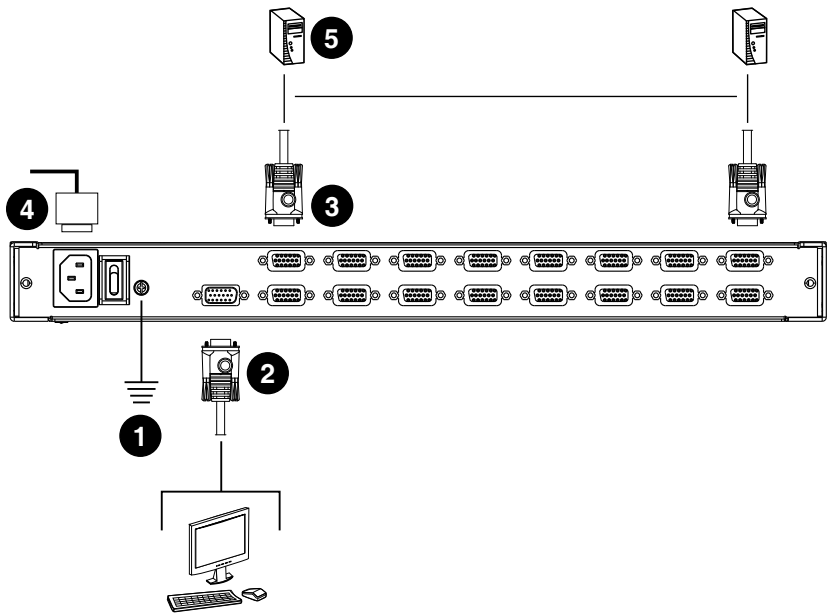
Cabling Diagrams

Use the following diagrams as a guide for attaching cables to an external console and/or computers you will be connecting to the RM-KB-LCD17x8/16KVM.

Console Cable Installation Diagram

USB

VGA

PS/2
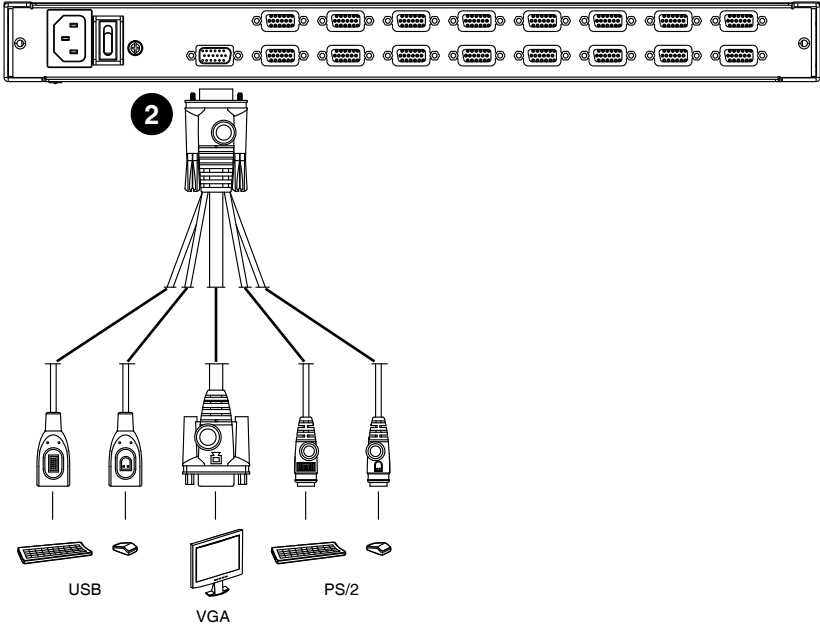
KVM Cable Installation Diagrams

USB KVM Cable Connection
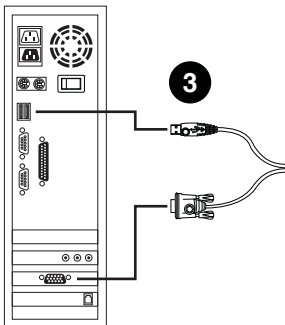
PS/2 KVM Cable Connection
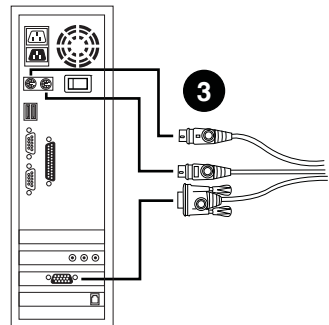
Basic Operation

Opening the Console

The RM-KB-LCD17x8/16KVM's console consists of two modules: an LCD display module located under the top cover; and a keyboard / touch pad module below the LCD module.

The modules can either slide together, or independently. This allows you to have the LCD display available for viewing while the keyboard / touch pad module is conveniently out of the way when not in use.

Opening Separately

1. Pull the top panel a few inches toward you.
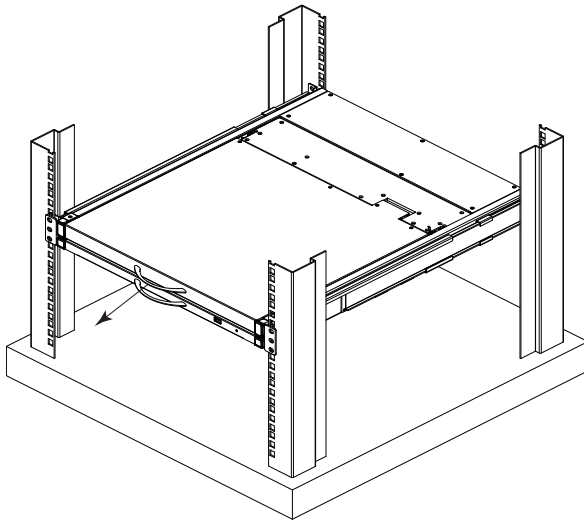
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2. Pull the top panel all the way out until it clicks into place.
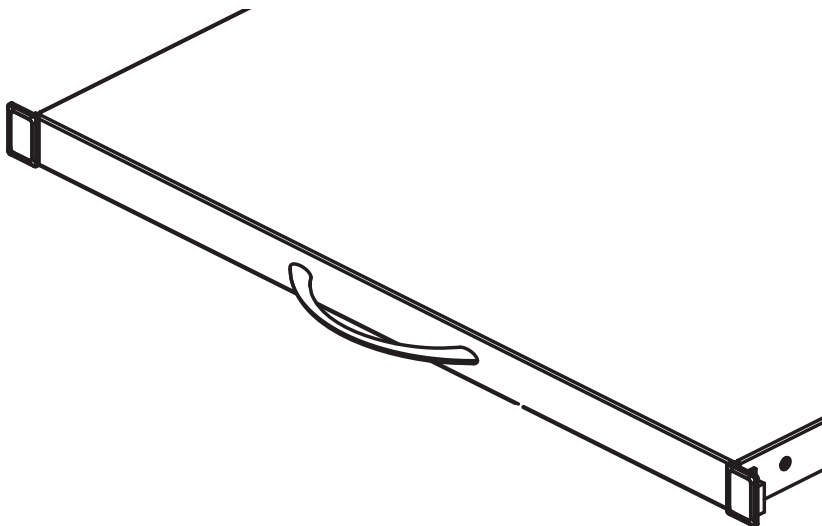
3. Rotate the top panel all the way back to expose the LCD screen.
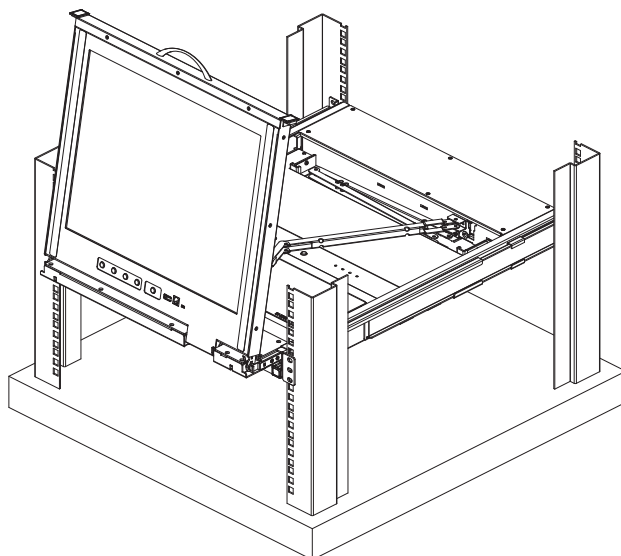
4. Reach underneath and pull the keyboard module all the way out until it clicks into place.
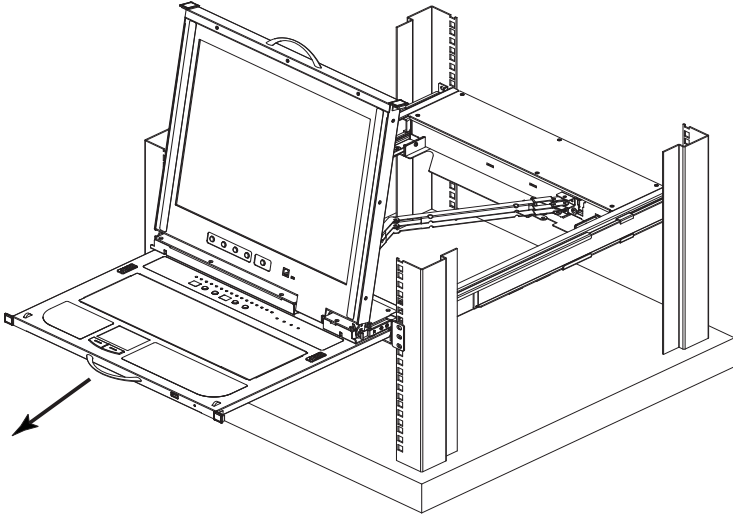
Opening Together

Refer to the diagrams in the *Opening Separately* section as you do the following:

1. Pull the release catch and pull the top and bottom panels out until the keyboard module clicks into place.

   Note: Once the console has been released, you can let go of the catch.

2. Pull the top panel the rest of the way out until it clicks into place.

3. Rotate the top panel all the way back to expose the LCD screen.

   Note: Refer to the warning regarding placing excessive weight on the keyboard module on the following page.

Closing the Console

1. Pull the release catches located on either side of the keyboard toward you to release the keyboard module, then slide the module slightly in.
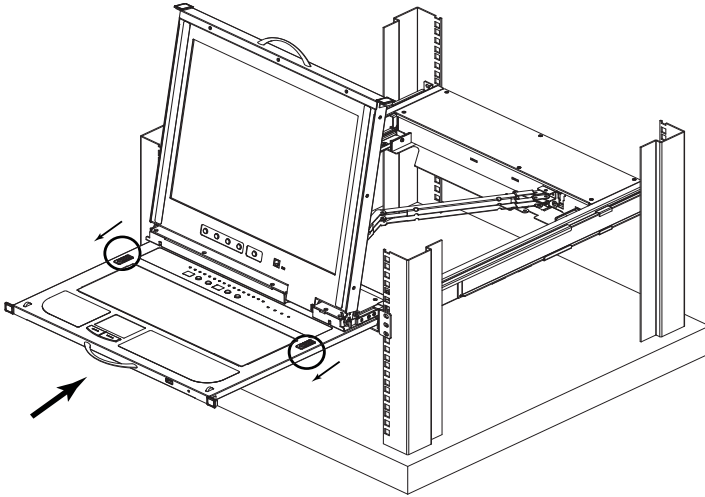
2. Let go of the catches. Using the front handle, push the keyboard module all the way in.
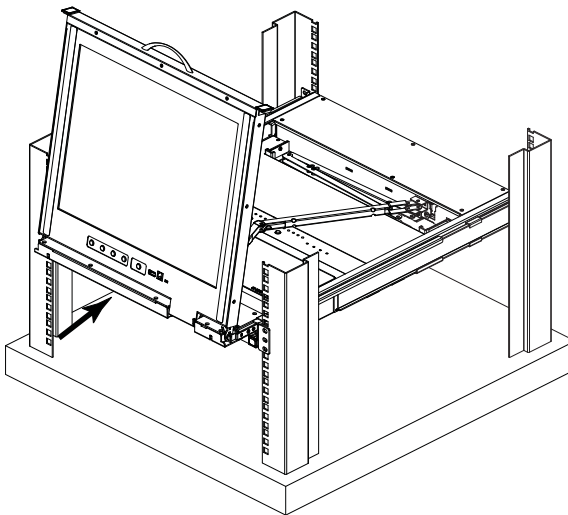
(Continues on next page.)

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3. Rotate the LCD module all the way down, then pull the rear catches to release the LCD module.
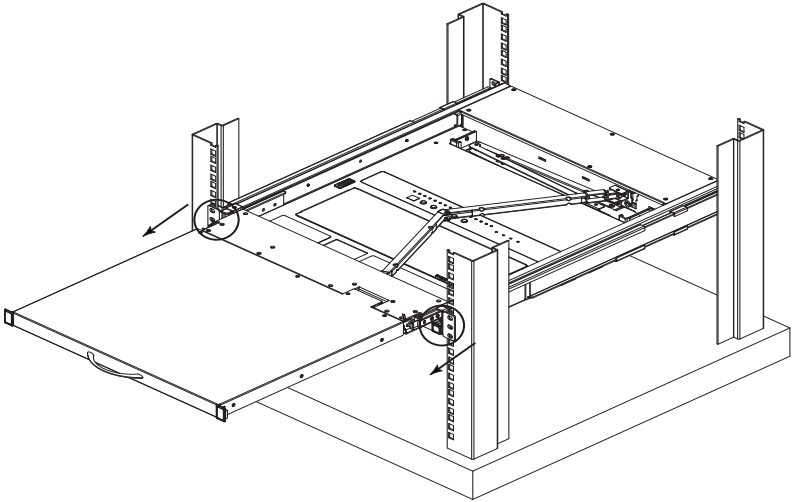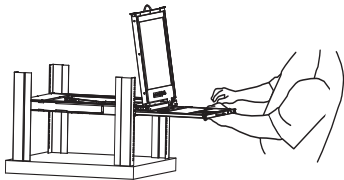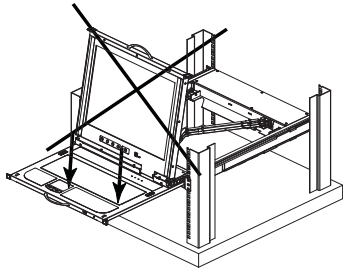
4. Using the front handle, push the module all the way in.
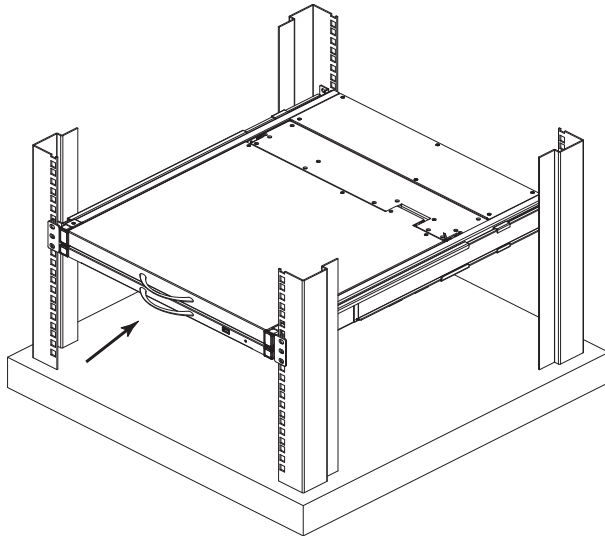
Operating Precautions

The maximum load bearing capacity of the keyboard module is 66 lbs (30kg) for up to 24 hours. Failure to heed the information below can result in damage to the keyboard module.

	RIGHT Rest your hands and arms lightly on the keyboard module as you work.
	WRONG! ◆ **DO NOT** lean your body weight on the keyboard module. ◆ **DO NOT** place heavy objects on the keyboard module.

Powering Off and Restarting

If it becomes necessary to power off the RM-KB-LCD17x8/16KVM, do the following before restarting it:

1. Shut down all the computers that are attached to the RM-KB-LCD17x8/16KVM.

    Note: Unplug the power cords of any computers that have the *Keyboard Power On* function. Otherwise, the RM-KB-LCD17x8/16KVM will still receive power from the computers.

2. Unplug the RM-KB-LCD17x8/16KVM from its power source.

3. Wait 10 seconds, then plug the RM-KB-LCD17x8/16KVM back in.

4. After the RM-KB-LCD17x8/16KVM has started and ascertained its station ID, power on the computers.

Note: If you have shut down more than one station, power up the highest station first and work your way down to the lowest one.

LCD On Screen Display (OSD) Configuration

The LCD Buttons

The LCD OSD allows you to set up and configure the LCD display. Four buttons are used to perform the configuration, as described in the table, below:

Button	Function
MENU	◆ When you have not entered the LCD OSD Menu function, pressing this button invokes the Menu function, and brings up the Main Menu. ◆ When you have entered the LCD OSD Menu function, and have reached a setting choice with the navigation buttons, pressing this button brings up its adjustment screen.
▶|▲	When navigating through the menus, this button moves you Right or Up. When making an adjustment, it increases the value.
◀|▼	When navigating through the menus, this button moves you Left or Down. When making an adjustment, it decreases the value.
EXIT	◆ When you have not entered the LCD OSD Menu function, pressing this button performs an auto adjustment. An auto adjustment automatically configures all the settings for the LCD panel to what the OSD considers their optimum values to be. ◆ When you have entered the LCD OSD Menu function, pressing this button exits the current menu and returns you to the previous menu. Use it to leave an adjustment menu when you are satisfied with the adjustment you made. ◆ When you are at the Main Menu, pressing this button exits the LCD OSD.

LCD Adjustment Settings

An explanation of the LCD OSD adjustment settings is given in the table below:

Setting	Explanation
Brightness	Adjusts the background black level of the screen image.
Contrast	Adjusts the foreground white level of the screen image.
Phase	If pixel jitter or horizontal line noise is visible on the display, your LCD may have the wrong phase setting. Adjust the phase setting to eliminate these problems.
Clock	If vertical banding is visible on the display, your LCD may have the wrong clock setting. Adjust the clock setting to eliminate vertical banding.
H-Position	Positions the display area on the LCD panel horizontally (moves the display area left or right).
V-Position	Positions the display area on the LCD panel vertically (moves the display area up or down).
Color Temperature	Adjusts the color quality of the display. You can adjust the warmth value, color balance, etc. The *Adjust Color* selection has a further submenu that lets you fine tune the RGB values.
Language	Selects the language that the OSD displays its menus in.
OSD Duration	Lets you set the amount of time the OSD displays on the screen. If there is no input for the amount of time you choose, the OSD display turns off.
Reset	Resets the adjustments on all menus and submenus to their factory default settings.

Note: As an alternative to manually adjusting the LCD settings, you can have the LCD auto-adjusted for optimum display by pressing the Exit button. See *EXIT*, page 28

Hot Plugging

The RM-KB-LCD17x8/16KVM supports *hot plugging* – components can be removed and added back into the installation by unplugging their cables from the ports without the need to shut the unit down. In order for hot plugging to work properly, however, the procedures described below must be followed:

Hot Plugging KVM Ports

You can add or remove computers by plugging/unplugging them into/from the KVM ports. In order for the OSD menus to correspond to the change, however, you must manually reconfigure the OSD to reflect the new Port information. See *F3: SET*, page 38, and *F4: ADM*, page 40, for details.

Note: If the computer's Operating System does not support hot plugging, this function may not work properly.

Hot Plugging External Console Ports

The external keyboard, monitor, mouse and front panel mouse connections can all be hot plugged. When hot plugging a mouse:

* You may unplug and replug the mouse (to reset the mouse, for example), as long as you use the same mouse.

* If you plug in a different mouse, all the stations and all the computers on the installation must be shut down for 10 seconds, then restarted following the power up sequence described under Step 5 on page 17.

Port Selection

The RM-KB-LCD17x8/16KVM provides three port selection methods to access the computers on the installation: Manual, an OSD (on-screen display) menu system, and Hotkeys. Manual port switching is discussed below. See Chapter 4, *On Screen Display (OSD) Operation* and Chapter 5, *Keyboard Port Operation* for more information.

Manual Port Switching

Use the **UP** and **DOWN** Port ID selection buttons located on the keyboard module (Page 8) to switch KVM focus to any port on the installation. Continually pressing any button cycles through the list of available ports.

Port ID Numbering

Each KVM port on the installation is assigned a unique Port ID.

- The *Port Number* is a two digit number of the port on the RM-KB-LCD17x8/16KVM station that a computer is connected to. This number is displayed on the front panel port ID LED.

- When keying in a Port ID number, the station number precedes the port number.

- Port numbers from 1–9 are padded with a preceding zero, so they become 01–09.

For example, a computer attached to **Port 6** would have a Port ID of: **01-06**.

USB Peripheral Devices

The front panel USB port is available to connect a USB peripheral device (flash drive, CD-ROM drive, printer, etc.) to the RM-KB-LCD17x8/16KVM. Any computer connected to the RM-KB-LCD17x8/16KVM can access the USB peripheral on a one-at-a-time basis.

The USB peripheral device is automatically detected on target computers when switching ports on the RM-KB-LCD17x8/16KVM. For example, when switching from a computer connected to port 1 to a computer connected to port 2, the peripheral device automatically disconnects from the computer on port 1 and connects to the computer on port 2.

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Chapter 4
On Screen Display (OSD) Operation

OSD Overview

The OSD (on-screen display) is a mouse and keyboard enabled, menu driven method to handle computer control and switching operations. All procedures start from the OSD main screen.

OSD Login

The OSD incorporates a two level (administrator / user) password system. Before the OSD main screen displays, a login screen appears requiring a password. If this is the first time that the OSD is used, or if the password function has not been set, simply press **[Enter]**. The OSD main screen displays in administrator mode. In this mode, you have administrator privileges, with access to all administrator and user functions, and can set up operations (including password authorization) as you like. However, if the password function has been set, you must provide an appropriate administrator/user password in order to access the OSD.

OSD Hotkey

You can display the OSD on the LCD or an external console monitor while also viewing the display of any port on the RM-KB-LCD17x8/16KVM by pressing the **[Scroll Lock]** key twice.

Note: You can optionally change the OSD hotkey to the Ctrl key, in which case you would press **[Ctrl]** twice (see *OSD Hotkey*, page 38). With this method, you must press the same [Ctrl] key.

OSD Main Screen

When you invoke the OSD, a screen similar to the one below appears:
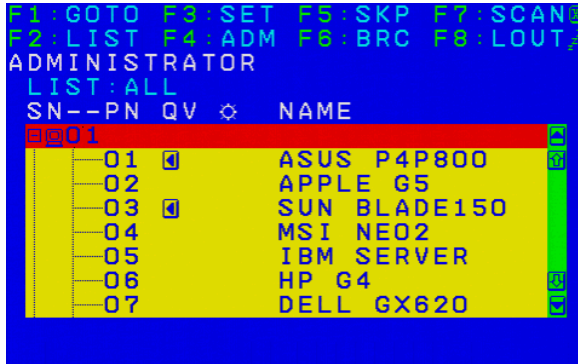
Note: 1. The diagram depicts the administrator's main screen. The user main screen does not show the **F4** and **F6** functions, since these are reserved for the administrator and can't be accessed by users.

2. The OSD always starts in list view, with the highlight bar at the same position it was in the last time it was closed.

3. Only the ports that have been set accessible by the administrator for the current logged in user are visible (see *SET ACCESSIBLE PORTS*, page 40, for details).

4. If the port list is collapsed, click on a switch number, or move the highlight bar to it then press the right arrow key to expand the list. Similarly, to collapse a switch's port list, click on the switch number, or move the highlight bar to it then press the left arrow key to collapse the list.

OSD Main Screen Headings

The table below describes the OSD Main Screen headings.

Heading	Description
SN--PN	This column lists the port ID numbers (station number - port number) for all the KVM ports on the installation. The simplest method to access a particular computer is move the highlight bar to it, then press **[Enter]**.
QV	If a port has selected for quick view scanning (see *Set Quick View Ports*, page 42), an arrowhead displays in this column.
☼	The computers that are powered on and are online have a sun symbol in this column.
NAME	If a port has been given a name (see *Edit Port Names*, page 41), its name appears in this column.

OSD Navigation

⬥ To dismiss the menu, and deactivate OSD, click the **X** at the upper right corner of the OSD window; or press **[Esc]**.

⬥ To log out, click **F8** at the top of the main screen, or press **[F8]**.

⬥ To move up or down through the list one line at a time, click the up and down triangle symbols (▲▼) or use the up and down arrow keys. If there are more list entries than what can appear on the main screen, the screen will scroll.

⬥ To move up or down through the list one screen at a time, click the up and down arrow symbols (♠♥), or use the [Pg Up] and [Pg Dn] keys. If there are more list entries than what can appear on the main screen, the screen will scroll.

⬥ To activate a port, double-click it, or move the highlight bar to it, then press **[Enter]**.

⬥ After executing any action, you automatically go back to the menu one level above.

OSD Functions

OSD functions are used to configure and control the OSD. For example, you can rapidly switch to any port, scan selected ports, limit the list you wish to view, designate a port as a quick view port, create or edit a port name, or make OSD setting adjustments.

To access an OSD function:

1. Either click a function key field at the top of the main screen, or press a function key on the keyboard.

2. In the submenus that appear make your choice either by double-clicking it, or moving the highlight bar to it, then pressing **[Enter]**.

3. Press **[Esc]** to return to the previous menu level.

F1: GOTO

Clicking the **F1** field or pressing **[F1]** activates the GOTO function. GOTO allows you to switch directly to a port either by keying in the port's *Name*, or its *Port ID*.

◆ To use the name method, key in **1**; key in the port's *Name*; then press **[Enter]**.

◆ To use the port ID method, key in **2**; key in the *Port ID*; then press **[Enter]**.

Note: You can key in a partial name or port ID. In that case, the screen will show all the computers that the user has *View* rights to (see *SET ACCESSIBLE PORTS*, page 40), that match the name or port ID pattern, regardless of the current list settings (see *F2 LIST*, page 37, for details).

To return to the OSD main screen without making a choice, press **[Esc]**.

F2: LIST

This function lets you broaden or narrow the scope of which ports the OSD displays on the main screen. The submenu choices and their meanings are given in the table below.

Choice	Meaning
ALL	Lists all of the ports on the installation that have been set accessible by the administrator for the current logged in user.
QUICK VIEW	Lists only the ports that have been selected as quick view ports (see *SET ACCESSIBLE PORTS*, page 40).
POWERED ON	Lists only the ports that have their attached computers powered on.
QUICK VIEW + POWERED ON	Lists only the ports that have been selected as quick view ports (see *SET QUICK VIEW PORTS*, page 42), and that have their attached computers powered on.

Move the highlight bar to the choice you want, then press **[Enter]**. An icon appears before the choice to indicate that it is the currently selected one.

F3: SET

This function allows the administrator and each user to set up his own working environment. A separate profile for each is stored by the OSD and is activated according to the username that was provided during login.

To change a setting:

1. Double-click it; or move the highlight bar to it, then press **[Enter]**.

2. After you select an item, a submenu with further choices appears. To make a selection, either double-click it; or move the highlight bar to it, then press **[Enter]**. An icon appears before the selected choice to indicate which one it is. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Selects which hotkey activates the OSD function: **[Scroll Lock] [Scroll Lock]** or **[Ctrl] [Ctrl]**. Since the [Ctrl] key combination may conflict with programs running on the computers, the default is the [Scroll Lock] combination.
PORT ID DISPLAY POSITION	Allows each user to customize the position where the port ID appears on the screen. The default is the upper left corner, but users can choose to have it appear anywhere on the screen. Use the mouse or the arrow keys plus Pg Up, Pg Dn, Home, End, and 5 (on the numeric keypad with Num Lock off), to position the port ID display, then double-click or press **[Enter]** to lock the position and return to the Set submenu.
PORT ID DISPLAY DURATION	Determines how long a port ID displays on the monitor after a port change has taken place. The choices are: **3 Seconds** (default) and **ALWAYS OFF**.
PORT ID DISPLAY MODE	Selects how the port ID is displayed: the port number plus the port name (**PORT NUMBER + PORT NAME**) (default); the port number alone (**PORT NUMBER**); or the port name alone (**PORT NAME**).
SCAN DURATION	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan mode (see *F7 SCAN*, page 45). Key in a value from 1–255 seconds, then press **[Enter]**. Default is 5 seconds; a setting of 0 disables the SCAN function.

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Setting	Function
SCAN–SKIP MODE	Selects which computers will be accessed under skip mode (see *F5 SKP*, page 43), and Auto Scan mode (see *F7 SCAN*, page 45. Choices are: **ALL** - All the ports which have been set accessible (see *SET ACCESSIBLE PORTS*, page 40); **QUICK VIEW** - Only those ports which have been set accessible and have been selected as quick view ports (see *SET QUICK VIEW PORTS*, page 42); **POWERED ON** - Only those ports which have been set accessible and are powered on; **QUICK VIEW + POWERED ON** - Only those ports which have been set accessible and have been selected as quick view ports and are powered on. The default is ALL. **Note:** The quick view choices only show up on the administrator's screen, since only he has *Quick View* setting rights (see *SET QUICK VIEW PORTS*, page 42, for details).
SCREEN BLANKER	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1–30 minutes, then press **[Enter]**. The default setting of 0 disables this function.
HOTKEY COMMAND MODE	Enables / disables the hotkey command function in case a conflict occurs with programs running on the computers.
HOTKEY	Sets the keyboard shortcut for invoking *Hotkey Mode* (see page 47). Choices are: **[NUM LOCK] + [-]** (minus) (default), and **[CTRL] + [F12]**.
OSD LANGUAGE	Sets the language used in the OSD. Choices are: English, German, Japanese, Simplified Chinese and Traditional Chinese.
TOUCHPAD	Enables / disables the touchpad.

F4: ADM

F4 is an administrator only function. It allows the administrator to configure and control the overall operation of the OSD. To change a setting double-click it, or use the up and down arrow keys to move the highlight bar to it then press **[Enter]**.

After you select an item, a submenu with further choices to select from appears. Double-click an item, or move the highlight bar to it then press **[Enter]**. An icon appears before the selected item so that you know which one it is. The settings are explained in the following table:

Setting	Function
SET USER LOGIN	Use this function to set usernames, passwords and fingerprints for the administrator and users. SET USERNAME AND PASSWORD ◆ Usernames and passwords for one administrator and four users can be set. ◆ After you select the administrator field or one of the user fields, a screen that allows you to key in the username and password appears. Usernames and passwords can be from 1 to 16 characters long and can consist of any combination of letters and numbers (A–Z, 0–9) and some additional keys (* ( ) + : - , ? . / space). ◆ For each individual, key in the username and password, confirm the password, then press **[Enter]**. ◆ To modify or delete a previous username and/or password, use the backspace key to erase individual letters or numbers. Press **[Enter]** when done. ◆ Usernames and passwords are not case sensitive. Usernames are displayed in capital letters in the OSD.
SET ACCESSIBLE PORTS	This function allows the administrator to define user access to the computers on the installation on a port-by-port basis. For each user, select the target port; then press the **[Spacebar]** to cycle through the choices: **F** (full access), **V** (view only), or blank. Repeat until all access rights have been set, then press **[Enter]**. The default is **F** for all users on all ports. **Note:** ◆ A blank setting means that no access rights are granted. The port will not show up on the user's LIST on the main screen. ◆ The administrator always has full access to all ports.

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Setting	Function
SET LOGOUT TIMEOUT	If there is no input from the console for the amount of time set with this function, the user is automatically logged out. A login is necessary before the console can be used again.
	This enables other users to gain access to the computers when the original user is no longer accessing them, but has forgotten to log out. To set the timeout value, key in a number from 1–180 minutes, then press **[Enter]**. The default setting of 0 disables this function.
EDIT PORT NAMES	To help remember which computer is attached to a particular port, every port can be given a name. This function allows the administrator to create, modify, or delete port names. To edit a port name:
	1. Click the port, or use the navigation keys to move the highlight bar to it, then press **[Enter]**.
	2. Key in the new port name, or modify/delete the old one. The maximum number of characters allowed for the port name is 12. Legal characters include:
	◆ All alpha characters: **A**–**Z**
	◆ All numeric characters: **0**–**9**
	◆ *** ( ) + : - , ? . /** and **Space**
	Case does not matter; OSD displays the port name in all capitals no matter how they were keyed in.
	3. When you have finished editing, press **[Enter]** to have the change take effect. To abort the change, press **[Esc]**.
RESTORE DEFAULT VALUES	This function is used to undo all changes and return the setup to the original factory default settings (see *OSD FACTORY DEFAULT SETTINGS*, page 66) except for the port name list, username and password information, which are saved.
CLEAR THE NAME LIST	This function clears the port name list.
ACTIVATE BEEPER	Choices are **Y** (on), or **N** (off). When activated, the beeper sounds whenever a port is changed; when activating the Auto Scan function (see *F7 SCAN*, page 45); or an invalid entry is made on an OSD menu. The default is **Y**.

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Setting	Function
SET QUICK VIEW PORTS	This function lets the administrator select which ports to include as quick view ports. ♦ To select/deselect a port as a quick view port, double-click the port, or use the navigation keys to move the highlight bar to it, then press **[Spacebar]**. ♦ When a port has been selected as a quick view port, an icon displays in the QV column of the LIST on the main screen. ♦ If one of the quick view options is chosen for the LIST view (see *F2 LIST*, page 37), only a port that has been selected here will display on the list. ♦ If one of the quick view options is chosen for auto-scanning (see *SCAN/SKIP MODE*, page 39), only a port that has been selected here will be auto-scanned. The default has no ports selected for quick view.
SET OPERATING SYSTEM	This function allows the administrator to define the operating system for the computer connected to each KVM port. The default is WIN (PC compatible). To set the port operating system: 1. From the list, select the port for which you wish to set the computer's operating system. 2. Set the operating system by pressing **[Spacebar]** to cycle through WIN, MAC, SUN, or OTHER . 3. Press **[Esc]** to exit. The operating system you selected is assigned to the KVM port.
FIRMWARE UPGRADE	In order to upgrade the RM-KB-LCD17x8/16KVM firmware (see page 55), you must first enable Firmware Upgrade mode with this setting. When you bring up this menu, the current firmware version levels are displayed. Select **Y** to enable Firmware Upgrade mode, or **N** to leave this menu without enabling it.
SET KEYBOARD LANGUAGE	Sets the language for the computer keyboard attached to the KVM port. To select a keyboard language, double-click it, or use the navigation keys to move the highlight bar to it, then press **[Enter]**. Choices are: AUTO (default), ENGLISH (US), ENGLISH (UK), GERMAN (GER.), GERMAN (SWISS), FRENCH, HUNGARIAN, ITALIAN, JAPANESE, KOREAN, RUSSIAN, SPANISH, SWEDISH and TRADITIONAL CHINESE.
SET CONSOLE MODE	This setting selects which consoles (internal/external) are enabled: **0 –** Both consoles enabled **1 –** LCD console only **2 –** External console only Use the spacebar to cycle to the choice you want. The default is 0.

F5: SKP

Clicking the **F5** field or pressing **[F5]** invokes Skip mode. This function enables you to easily skip backward or forward – switching the console focus from the currently active computer port to the previous or next available one.

♦ The selection of computers to be available for skip mode switching is made with the *Scan–Skip* mode setting under the **F3: SET** function (see page 38).

♦ When you are in skip mode:

press either [←] or [↑] to switch to the previous computer in the list

press either [→] or [↓] to switch to the next computer in the list

> **Note:** When you skip, you only skip to the the previous or next available computer that is in the *Scan–Skip* mode selection (page 39).

♦ If a port has been selected for *Scan–Skip* mode, when the focus switches to that port a left/right triangle symbol appears before its port ID display.

♦ While skip mode is in effect, the console will not function normally. You must exit skip mode in order to regain control of the console.

♦ To exit skip mode, press **[Spacebar]** or **[Esc]**.

F6: BRC

F6 is an administrator only function. Clicking the **F6** field, or pressing **[F6]**, invokes *Broadcast* (BRC) mode. When this function is in effect, commands sent from the console are broadcast to to all available computers on the installation.

This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system wide shutdown, installing or upgrading software, etc.

BRC works in conjunction with the **F2: LIST** function. The LIST function (see page 37), is used to broaden or narrow the focus of which ports appear on the OSD main screen. When you broadcast a command, it only goes to the ports currently listed on the OSD main screen.

- While BRC mode is in effect, a speaker symbol appears before the port ID display of the port that currently has the console focus.

- While BRC mode is in effect, the mouse will not function normally. You must exit BRC mode in order to regain control of the mouse.

- To exit BRC mode, invoke the OSD (with the OSD hotkey), then click the **F6** field, or press **[F6]**, to turn BRC mode off.

F7: SCAN

Clicking the **F7** field or pressing **[F7]** invokes *Auto Scan* mode. This function allows you to automatically switch among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching yourself.

◆ The selection of computers to be included for auto-scanning is made with the *Scan–Skip* mode setting under the **F3: SET** function (see page 39).

◆ The amount of time that each port displays for is set with the *Scan Duration* setting under the **F3: SET** function (see page 38). When you want to stop at a particular location, press the **[Spacebar]** to stop scanning.

◆ If the scanning stops on an empty port, or one where the computer is attached but is powered Off, the monitor screen will be blank, and the mouse and keyboard will have no effect. After the *Scan Duration* time is up, the scan function will move on to the next port.

◆ As each computer is accessed, an **S** appears in front of the port ID display to indicate that it is being accessed under *Auto Scan* mode.

◆ While *Auto Scan* mode is in effect, the console will not function normally. You must exit *Auto Scan* mode in order to regain control of the console.

◆ While you are in *Auto Scan* mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **[P]**, or with a left-click of the mouse. See *Invoking Auto Scan*, page 49, for details.

◆ To exit *Auto Scan* mode, press the **[Spacebar]** or **[Esc]**.

F8: LOUT

Clicking the **F8** field, or pressing **[F8]** logs you out of OSD control of the computers, and blanks the console screen. This is different from simply pressing **[Esc]** when you are at the main screen to deactivate the OSD. With this function you must log in all over again to regain access to the OSD, whereas with **[Esc]**, all you have to do to reenter the OSD is tap the OSD hotkey.

Note: 1. When you reenter the OSD after logging out, the screen stays blank except for the OSD main screen. You must input your username and password before you can continue.

2. If you reenter the OSD after logging out, and immediately use **[Esc]** to deactivate the OSD without having selected a port from the OSD menu, a null port message displays on the screen. The OSD hotkey will bring up the main OSD screen.

Chapter 5
Keyboard Port Operation

Hotkey Port Control

Hotkey port control allows you to provide KVM focus to a particular computer directly from the keyboard. The RM-KB-LCD17x8/16KVM provides the following hotkey port control features:

- ◆ Selecting the Active Port
- ◆ Auto Scan Mode Switching
- ◆ Skip Mode Switching
- ◆ Computer Keyboard / Mouse Reset

The following settings can also be controlled in *Hotkey* mode:

- ◆ Setting the Beeper
- ◆ Setting the Quick Hotkey
- ◆ Setting the OSD Hotkey
- ◆ Setting the Port Operating System
- ◆ Restoring the OSD Default Values

Invoke Hotkey Mode

All hotkey operations begin by invoking *Hotkey* mode.[1] There are two possible keystroke sequences used to invoke *Hotkey* mode, though only one can be operational at any given time:

Number Lock and Minus Keys

1. Hold down the **Num Lock** key;

2. Press and release the **minus** key;

3. Release the **Num Lock** key:

```
[Num Lock] + [-]
```

---

1. Make sure that the *Hotkey Command Mode* function is enabled and that you key in the appropriate *Hotkey*. See page 39 for details.

Control and F12 Keys

1. Hold down the **Ctrl** key;

2. Press and release the **F12** key;

3. Release the **Ctrl** key:

   ```
   [Ctrl] + [F12]
   ```

When *Hotkey* mode is active:

◆ A command line appears on the monitor screen. The command line prompt is the word *Hotkey:* in white text on a blue background, and displays the subsequent hotkey information that you key in.

◆ Ordinary keyboard and mouse functions are suspended – only hotkey compliant keystrokes (described in the sections that follow), can be input.

Pressing **[Esc]** exits *Hotkey* mode.

Select the Active Port

Each KVM port is assigned a port ID (see *Port ID Numbering*, page 30). You can directly access any computer on the installation with a hotkey combination that specifies the port ID of the KVM port that a computer is connected to. To access a computer using hotkeys:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Key in the port ID.

   The port ID numbers display on the command line as you key them in. If you make a mistake, use **[Backspace]** to erase the wrong number.

3. Press **[Enter]**.

   After you press [Enter], the KVM focus switches to the designated computer and you automatically exit hotkey mode.

Note: In hotkey mode, KVM focus will not switch to a port if an invalid switch or port number is entered. The hotkey command line will continue to display on the screen until you enter a valid switch and port number combination, or exit hotkey mode.

Auto Scan Mode

Auto Scan automatically switches, at regular intervals, among all the KVM ports that have been set as accessible under *Scan–Skip Mode*, so that their activity can be monitored automatically. See *Scan–Skip Mode* on page 39 for more information.

Invoking Auto Scan:

To start *Auto Scan*, key in the following Hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[A]**. After you press **A**, then **[Enter]**, you automatically exit hotkey mode, and enter *Auto Scan* mode.

   ◆ While you are in *Auto Scan* mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P** or with a left click of the mouse. During the time that auto-scanning is paused, the command line displays: **Auto Scan**: **Paused**.

   Pausing when you want to keep the focus on a particular computer is more convenient than exiting *Auto Scan* mode because when you resume scanning, you start from where you left off. If, on the other hand, you exited and restarted, scanning would start over from the very first computer on the installation.

   To resume Auto Scanning, press any key or left-click. Scanning continues from where it left off.

   ◆ While *Auto Scan* mode is in effect, ordinary keyboard and mouse functions are suspended – only *Auto Scan* mode compliant keystrokes and mouse clicks can be input. You must exit *Auto Scan* mode in order to regain normal control of the console.

3. To exit *Auto Scan* mode press **[Esc]** or **[Spacebar]**. Auto-scanning stops when you exit *Auto Scan* mode.

Skip Mode

This feature allows you to switch between computers in order to monitor them manually. You can dwell on a particular port for as long as you like – as opposed to auto-scanning, which automatically switches after a fixed interval. To invoke *Skip* mode, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Key in **[Arrow]**

   ◆ Where [Arrow] refers to one of the arrow keys. After you press an arrow, you automatically exit hotkey mode and enter *Skip* mode where you can switch ports as follows:

← or ↑	Skips to the first accessible port. (See *Scan/Skip Mode*, page 39, for information regarding accessible ports.)
→ or ↓	Skips to the next accessible port.

   ◆ Once you are in *Skip* mode, you can keep on skipping by pressing the arrow keys. You don't have to use the [Num Lock] + [-] combination again.

   ◆ While *Skip* mode is in effect, ordinary keyboard and mouse functions are suspended – only *Skip* mode compliant keystrokes can be input. You must exit *Skip* mode in order to regain normal control of the console.

3. To exit *Skip* mode, press **[Esc]** or **[Spacebar]**.

Computer Keyboard / Mouse Reset

If the keyboard or mouse cease to function on the computer connected to the currently selected port, you can perform a keyboard / mouse reset on the computer. This function is essentially the same as unplugging and replugging the keyboard and mouse on the target computer. To perform a computer keyboard / mouse reset, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[F5].**

After you press [F5] you automatically exit *Hotkey* mode and regain keyboard and mouse control on the computer connected to the KVM port. If you fail to regain keyboard / mouse control on the computer after pressing [F5], perform a system reset. For more information see *Reset Switch*, page 8.

Hotkey Beeper Control

The beeper (see Activate Beeper, page 41) can be hotkey toggled on and off. To toggle the beeper, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[B]**.

After you press [B], the beeper toggles on or off. The command line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit hotkey mode.

Quick Hotkey Control

The *Quick Hotkey* (see *HOTKEY*, page 39) can be toggled between [Num Lock] + [-], and [Ctrl] + [F12]. To toggle the *Quick Hotkey*:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[H]**.

After you press [H], the command line displays *HOTKEY HAS BEEN CHANGED* for one second; then the message disappears and you automatically exit *Hotkey* mode.

OSD Hotkey Control

The *OSD Hotkey* (see *OSD HOTKEY*, page 38) can be toggled between [Scroll Lock], [Scroll Lock] and [Ctrl], [Ctrl]. To toggle the *OSD Hotkey*, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[T]**.

After you press [T], the command line displays *HOTKEY HAS BEEN CHANGED* for one second; then the message disappears and you automatically exit *Hotkey* mode.

Port OS Control

A port's operating system can be changed to match that of the computer attached to the port. To change a port's operating system, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Key in **[Function]**, where [Function] refers to one of the function keys in the following table:

Key	Description
F1	Sets the Port OS to Windows
F2	Sets the Port OS to Mac
F3	Sets the Port OS to Sun

After pressing a function key you automatically exit *Hotkey* mode.

Restore Default Values

This administrator only hotkey restores the RM-KB-LCD17x8/16KVM default values. See *RESTORE DEFAULT VALUES*, page 41. To restore the default values, key in the following hotkey combination:

1. Invoke hotkey mode with the **[Num Lock]** + **[-]** or **[Ctrl]** + **[F12]** combination.

2. Press **[R]**.

3. Press **[Enter]**.

   After you press [Enter], the command line displays *RESET TO DEFAULT SETTING* for three seconds; then the message disappears and you automatically exit *Hotkey* mode.

Hotkey Summary Table

[Num Lock] + [-] or [Ctrl] + [F12]	[A] [Enter] or [Q] [Enter]	Invokes *Auto Scan* mode.
		When *Auto Scan* mode is in effect, [P] or left-click pauses auto-scanning.
		When auto-scanning is paused, pressing any key or another left-click resumes auto-scanning.
	[B]	Toggles the beeper on or off.
	[Esc] or [Spacebar]	Exits hotkey mode.
	[F1]	Set Operating System to Windows
	[F2]	Set Operating System to Mac
	[F3]	Set Operating System to Sun
	[F5]	Performs a keyboard / mouse reset on the target computer.
	[H]	Toggles the *Quick Hotkey* invocation keys between [Ctrl] + [F12] and [Num Lock] + [-].
	[R] [Enter]	This administrator only hotkey restores the switch's default values. See *RESTORE DEFAULT VALUES*, page 41.
	[SN][PN] [Enter]	Switches access to the computer that corresponds to that port ID.
	[T]	Toggles the *OSD Hotkey* between [Ctrl] [Ctrl] and [Scroll Lock] [Scroll Lock].
	[←] or [↑]	Invokes *Skip* mode and skips from the current port to the first accessible port previous to it.
	[→] or [↓]	Invokes *Skip* mode and skips from the current port to the next accessible port.

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The Firmware Upgrade Utility

Introduction

The purpose of the Windows-based firmware upgrade utility is to provide an automated process for upgrading the RM-KB-LCD17x8/16KVM and compatible adapter cable firmware. The program comes as part of a firmware upgrade package that is specific for each device.

As new firmware versions become available, new firmware upgrade packages are posted on our website. Check the website regularly to find the latest information and packages.

Downloading the Firmware Upgrade Package

To download the firmware upgrade package:

1. From a computer that is not part of your KVM installation go to our website and choose the model name that relates to your device. A list of available firmware upgrade packages appears.

2. Choose the firmware upgrade package that you wish to install (usually the most recent) and download it to your computer.

Preparation

To prepare for the firmware upgrade, do the following:

1. Use the *Firmware Upgrade Cable* (provided with this unit), to connect a COM port on your computer to the *Firmware Upgrade Port* of your switch.
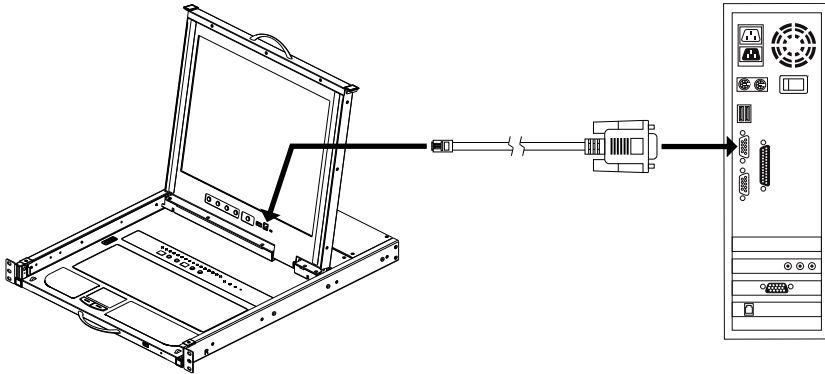
2. Shut down all the computers connected to the KVM ports.

3. From your KVM switch console, login to the OSD as the administrator (see page 33) and select the **F4 ADM** function.

4. Scroll down to FIRMWARE UPGRADE. Press **[Enter]**, then press **[Y]** to invoke *Firmware Upgrade* mode (see page 42.).

Note: During *Firmware Upgrade* mode, the port LEDs will flash on and off.

Starting the Upgrade

To upgrade the firmware:

1. Run the downloaded firmware upgrade package file either by double-clicking the file icon, or by opening a command line and entering the full path to it. The *Firmware Upgrade Utility* main screen appears. The devices capable of being upgraded are listed in the *Device List* panel:
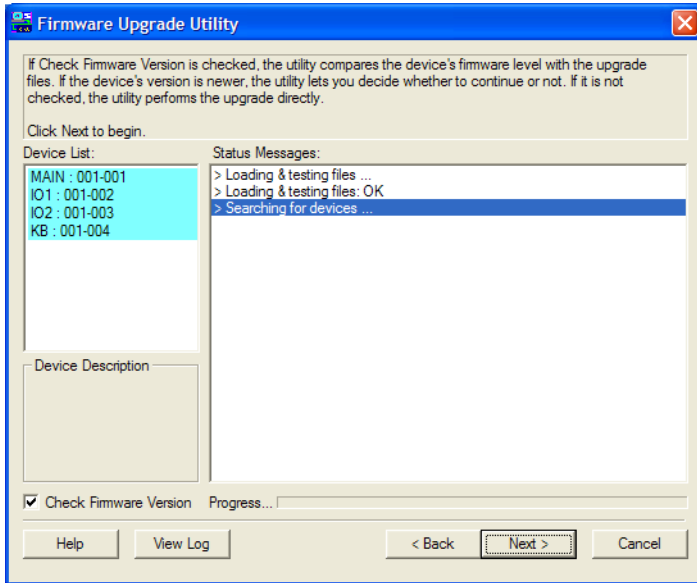
2. Click **Next** to perform the upgrade.

   If you enabled *Check Firmware Version*, the utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to continue or cancel.
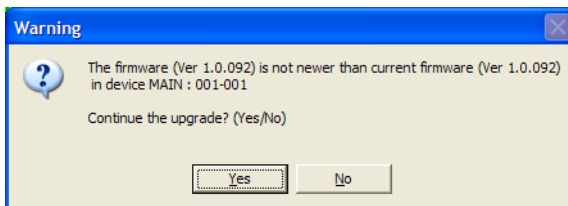
If you didn't enable *Check Firmware Version*, the utility installs the upgrade files without checking whether they are a higher level, or not.

As the upgrade proceeds, status messages appear in the *Status Messages* panel, and the progress toward completion is shown on the *Progress* bar.

Upgrade Succeeded

After the upgrade has completed, a screen appears to inform you that the procedure was successful:
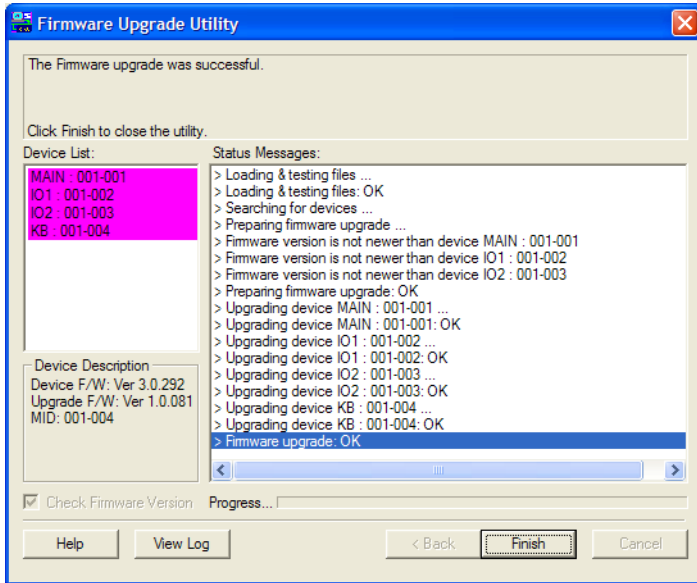
Click **Finish** to close the firmware upgrade utility.

Upgrade Failed

If the *Upgrade Succeeded* screen doesn't appear, it means that the upgrade failed to complete successfully. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

There are three conditions that call for firmware upgrade recovery:

- ◆ When a firmware upgrade is manually aborted.
- ◆ When the mainboard firmware upgrade fails.
- ◆ When the I/O firmware upgrade fails.

To perform a firmware upgrade recovery, do the following:

1. Power off the switch.

2. Connect the *Firmware Upgrade Cable* to its *Firmware Upgrade Port*.

3. Slide the *Firmware Upgrade Recovery Switch* to the **Recover** position.

4. Power the switch back on and repeat the upgrade procedure.

5. After the switch has been successfully upgraded, power it off, and slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.

6. Power the switch back on.

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Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.

- Follow all warnings and instructions marked on the device.

- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.

- Do not use the device near water.

- Do not place the device near, or over, radiators or heat registers.

- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.

- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.

- Never spill liquid of any kind on the device.

- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

- The device is designed for IT power distribution systems with 230V phase-to-phase voltage.

- To prevent damage to your installation it is important that all devices are properly grounded.

- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.

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- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible power supply (UPS).

- Position system cables and power cables carefully; Be sure that nothing rests on any cables.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.

- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.

- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.

- Do not connect the RJ-11 connector marked "UPGRADE" to a public telecommunication network.

Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

- Always load the rack from the bottom up, and load the heaviest item in the rack first.

- Make sure that the rack is level and stable before extending a device from the rack.

- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.

- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.

- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- Ensure that proper airflow is provided to devices in the rack.

- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer

- Do not step on or stand on any device when servicing other devices in a rack.

Technical Support

Technical support is available both by email and online (with a browser over the web).

        TechSupport@middleatlantic.com

        Phone: 973 839 1011

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.

- Your computer configuration, including operating system, revision level, expansion cards, and software.

- Any error messages displayed at the time the error occurred.

- The sequence of operations that led up to the error.

- Any other information you feel may be of help.

Specifications

Function		RM-KB-LCD17x8	RM-KB-LCD17x16
Computer Connections		8	16
Port Selection		OSD, Hotkeys, Pushbuttons	
Connectors	External Console Port	1 x SPHD-18 (Male)	
	External Mouse Port	1 x USB Type-A (Female)	
	KVM Ports	8 x SPHD-15 (Female)	16 x SPHD-15 (Female)
	FW Upgrade	1 x RJ-11 (Female)	
	Power	1 x 3-prong AC Socket	
	USB 1.1 Hub	1 x USB Type-A (Female)	
Switches	Reset		1 x Semi-recessed Pushbutton	
	Power		1 x Rocker Switch	
	Firmware Upgrade		1 x Switch	
	LCD Adjust		4 x Pushbutton	
	LCD On/ Off		1 x LED Pushbutton (Orange)	
	Port Selection		2 x Pushbutton	
LEDs	On Line		8 (Orange)	16 (Orange)
	Port ID		2 x 7-segment LED Display (Yellow)	
	Power		1 (Dark Green)	
	Lock	Num	1 (Green)	
		Caps	1 (Green)	
		Scroll	1 (Green)	
Emulation	Keyboard / Mouse		PS/2, USB	
Video		1280 x 1024 @ 75 Hz; DDC2B	
Scan Interval (OSD Select)		1–255 sec.	
I/P Rating		100–240 VAC, 50/60 Hz, 1 A	
Power Consumption		120V, 27.5W / 230V, 28W	
Environment	Operating Temp.	32–104º F (0–40º C)	
	Storage Temp.	-4–140ºF (-20–60º C)	
	Humidity	0–80% RH, Noncondensing	
Physical Properties	Housing	Metal + Plastic	
	Weight	32.12 lb. (14.57 kg)	32.47 lb. (14.73 kg)
	Dimensions (L x W x H)	22.75 x 19.01 x 1.65 in (57.80 x 48.30 x 4.42 cm)	22.75 x 19.01 x 1.65 in (57.80 x 48.30 x 4.42 cm)

Clear Login Information

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted, or you have forgotten it), you can clear the login information with the following procedure.

1. Power off the switch and remove the top cover from the unit chassis.

2. Short the jumper labeled *Default Password* on the switch's main board


```
Restore
Default     J17
Password
```
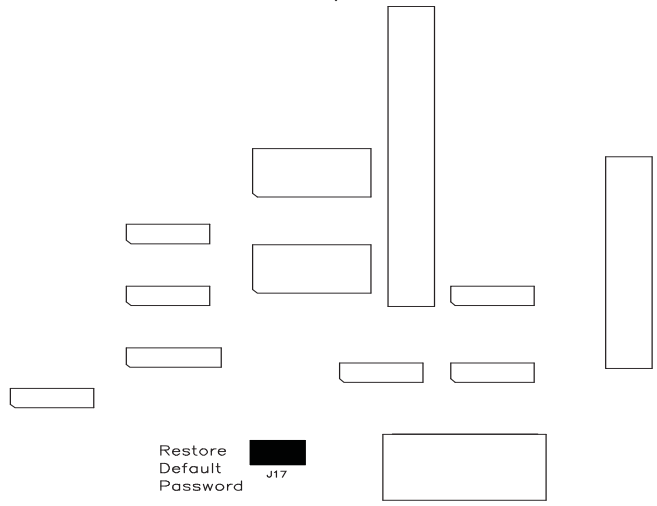
3. Power on the switch.

   When you power the switch on, the following message appears on the LCD display:

   ```
   USERNAME AND PASSWORD INFORMATION HAS BEEN CLEARED.
   PLEASE POWER OFF THE SWITCH, REMOVE THE JUMPER, CLOSE
   THE CASE, THEN RESTART.
   ```

4. After you start back up, the OSD login function acts exactly the way it did the first time the switch was run (see *OSD Overview*, page 33) and you can reset passwords for the Administrators and Users.

OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display Position	Upper Left Corner
Port ID Display Duration	3 Seconds
Port ID Display Mode	Port Number plus the Port Name
Scan Duration	5 Seconds
Scan/Skip Mode	All
Screen Blanker	0 (Disabled)
Logout Timeout	0 (Disabled)
Beeper	Y (Activated)
Accessible Ports	F (Full) for all users on all ports

Troubleshooting

Overview

Operation problems can be due to a variety of causes. The first step in solving them is to make sure that all cables are securely attached and seated completely in their sockets.

In addition, updating the product's firmware may solve problems that have been discovered and resolved since the prior version was released. If your product is not running the latest firmware version, we strongly recommend that you upgrade. See *The Firmware Upgrade Utility*, page 55, for upgrade details.

Problem	Solution
There are ghost images on the external monitor.	The distance between the external console and the RM-KB-LCD17x8/16KVM is too great. The maximum VGA cable distance should not exceed 65 feet (20 m) and, in some cases, may need to be shorter. Replace the VGA cable with one of an appropriately short length.

Dedicated Invocation Keys

Two dedicated keys are provided on the keyboard module to make it easy to invoke Hotkey mode and the OSD, as shown in the diagram, below :

Note: These keys are toggles. Press them once to invoke the feature, press them again to exit.

About SPHD Connectors

This product uses SPHD connectors for its KVM and/or Console ports. We have specifically modified the shape of these connectors so that only KVM cables that we have designed to work with this product can be connected.

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